

Electrocardiography
Section II: Infarction and Pseudo-Infarction
Prinzmetal's Variant Angina

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Myocardial Infarction and Ischemia

- Ischemia is tissue receiving insufficient blood supply
- If the ischemia is persistent, it results in the death of the tissue – infarction
- If the ischemia is transient or promptly reversed (angioplasty or thrombolytic agents), there may be very little or no permanent damage



ST-T Wave Shifts

- Whether an event is an infarct or reversible ischemia cannot be identified from an isolated single ECG
- One needs to observe the evolution over time
- Acute interventions with catheterization, angioplasty and stents has reduced the severity of most MI's where the patient has access to a major medical center



ST-T wave shifts

- **ST segment depression represents subendocardial ischemia or infarction**
- **ST segment elevation represents transmural ischemia or infarction**
- **There are both STEMI and non-STEMI infarctions**

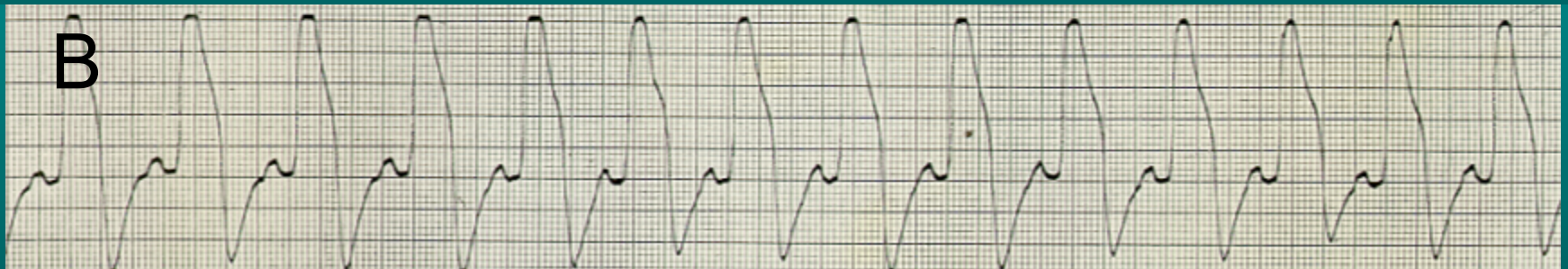
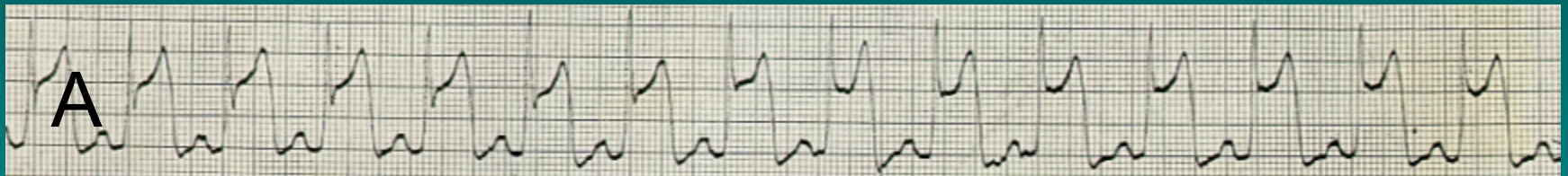


Clinical Presentation

- 48 year old woman with classic ischemic quality chest pain but occurring at rest and not exertion
- Resting ECG when asymptomatic is **NORMAL**
- Premenopausal, non-smoker, normal BP, negative FH, Total Cholesterol 156, HDL 60
- c/o recurrent 8/10 crushing precordial chest pain – brought to ER during one episode



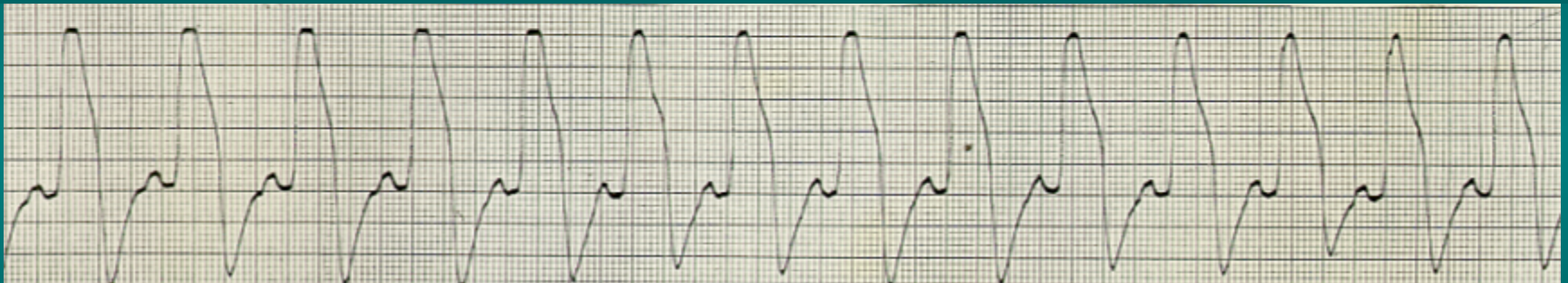
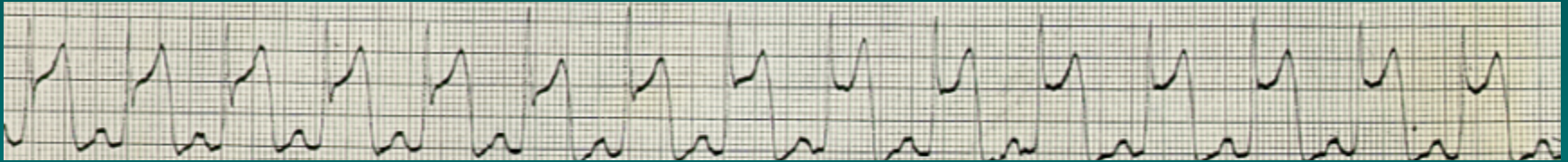
Presenting Rhythm Strip during Chest Pain



Sequential rhythm strips – same lead.

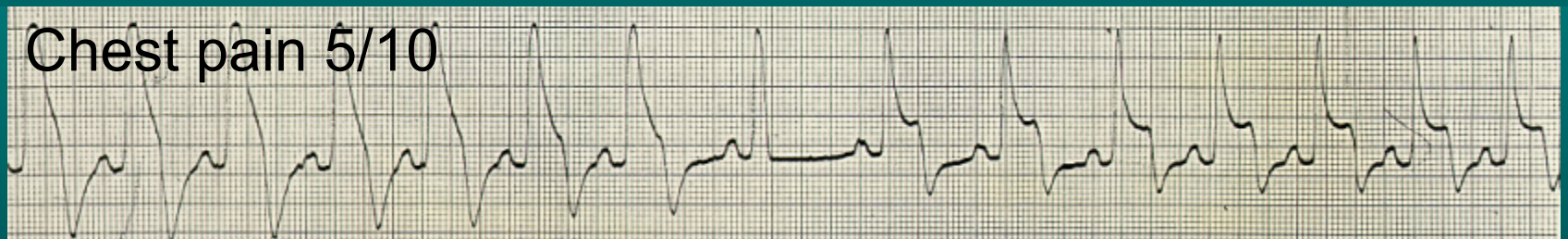
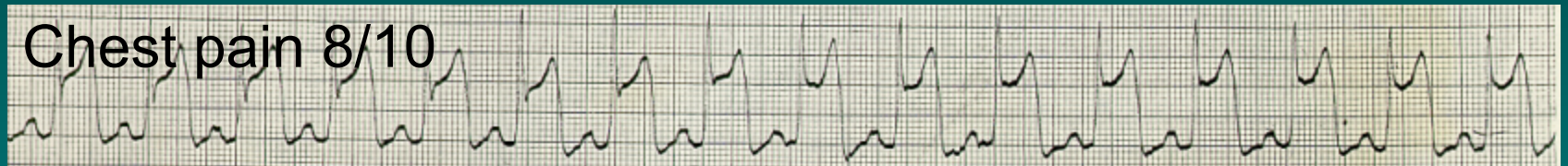
From A to B, the chest pressure markedly increased

What should be done now?



- A. Emergency cardiac cath and PTCA/Stent**
- B. tPA (thrombolytic therapy)**
- C. Sublingual nitroglycerine**
- D. IV morphine**

Sequential rhythm strips



Diagnosis

- **Prinzmetal's Variant Angina (coronary vasospasm)**
- **Cardiac catheterization**
 - Normal LV function
 - Clean coronary arteries
 - LAD spasm induced with ergonovine
- **Rx:**
 - Sublingual TNG on prn basis
 - Nifedipine (Calcium Channel Blocker)

Lesson

- **ST segment elevation simply means transmural ischemia**
- **The patient's subsequent course determines if this will be an infarct or transient ischemia**
- **Ischemia resolves with no permanent damage**
- **Infarct evolves with sequential ST-T changes and development of Q waves**



Greenish Blue (female)

Sequoia National Forest

Tulare County, CA

5, 2009

July



Thank You

Questions?